



## Amendments

RECEIVED  
AUG 20 2002  
TECHNOLOGY CENTER 1700

(MARKED-UP VERSION)

PLEASE AMEND THE CLAIMS AS FOLLOWS:

1. (Amended) A method for dewatering biological sludge that has been digested by a thermophilic digestion process comprising:

- a<sub>1</sub>
- a. adding a polymeric quaternary ammonium compounds, aluminum sulfate, ferric chloride and blends thereof, as primary component, to the biological sludge; and
  - b. adding [polyacrylamidee] polyacrylamide to the biological sludge; such that any combinations of the primary component and of the [polyacrylamidees] polyacrylamides enhance dewatering of the sludge.

a<sub>2</sub>

4. (Amended) The method for dewatering biological sludge according to claim 1, wherein the polymeric quaternary ammonium compound, aluminum sulfate, ferric chloride and blends thereof, are added directly to the sludge and, upon formation of microflocs of the sludge from the polymeric quaternary ammonium compound, aluminum sulfate, ferric chloride and blends thereof, a cationic [polyacrylamidee] polyacrylamide is added to form a floc that dewateres the sludge.

a<sub>3</sub>

7. (Amended) The method for dewatering biological sludge according to claim 1, wherein ratios of the [polyacrylamidee] polyacrylamide with respect to aluminum sulfate range from about 1:80 to about 1:8.

8. (Amended) The method for dewatering biological sludge according to claim 1, wherein ratios

a3  
cont.

of the [polyacrylamidee] polyacrylamide with respect to ferric chloride range from about 1:70 to about 1:7.

---

a4

10. (Amended) The method for dewatering biological sludge according to claim 1, wherein the polymeric quaternary ammonium compound, aluminum sulfate, ferric chloride and blends thereof, are added directly to the sludge, in an amount sufficient to cause formation of a cationic overcharge within a developed micro floc system, and an anionic [polyacrylamidee] polyacrylamide is then added for final floc formation.

11. (Amended) The method for dewatering biological sludge according to claim 10, wherein the polymeric quaternary ammonium compound and the anionic [polyacrylamidee] polyacrylamide are in an approximately 1:8 to 20:1 ratio, with the anionic polyacrylamidee having a higher molecular weight than the polymeric quaternary ammonium compound does.

---

13. (Amended) The method for dewatering biological sludge according to claim 1, wherein the biological sludge [is mixed with] comprises primary sludge.

a6

14. (Amended) A composition for dewatering biological sludge according to claim 1 comprising polymeric quaternary ammonium compounds, aluminum sulfate, ferric chloride and blends thereof, as primary component, and [polyacrylamidee] polyacrylamide said components being present in the composition in a ratio to enable the composition to function as an agent for dewatering biological sludge from a thermophilic digestion process.

15. (Amended) The method for dewatering biological sludge according to claim 1, wherein the polymeric quaternary ammonium compounds, aluminum sulfate, ferric chloride and blends thereof, as well as the [polyacrylamide] polyacrylamide, are used in solution, in emulsion or in dry form.

16. (Amended) A method for dewatering biological sludge that has been digested by a thermophilic digestion process comprising:

- AK  
cont.  
2/6/03  
BMM
- a. adding a polymeric quaternary ammonium compound, and at least one of aluminum sulfate or ferric chloride to the biological sludge; and
  - b. adding a polyacrylamide to the biological sludge; such that the combination of a polymeric quaternary ammonium compound, aluminum sulfate, ferric chloride, and [a] polyacrylamide [and blends there] ~~or~~ enhance the dewatering of the sludge.

29  
17. (Amended) A method for dewatering biological sludge that has been digested by a thermophilic digestion process comprising:

- a. adding aluminum sulfate to the biological sludge; and
- b. adding a polyacrylamide to the biological sludge; such that the combination of aluminum sulfate and [a] polyacrylamide [and blends thereof] enhance the dewatering of the sludge

wherein step (b) occurs after or simultaneously with step (a).

34  
18. (Amended) A method for dewatering biological sludge that has been digested by a thermophilic digestion process comprising:

- 2/6/03  
BMM
- a. <sup>adding</sup> ~~Adding~~ ferric chloride to the biological sludge; and

- 2/6/03  
BMP
- b. <sup>adding</sup> ~~Adding~~ a polyacrylamide to the biological sludge; such that the combination of the ferric chloride and [a] polyacrylamide [and blends thereof] enhance the dewatering of the sludge

wherein the polyacrylamide is a cationic or anionic polyacrylamide.

Ab  
cont.

PLEASE DELETE CLAIM 19.

PLEASE DELETE CLAIM 20.

17  
21. (Amended) The method for dewatering biological sludge according to claim [19] <sup>16</sup>, wherein both aluminum sulfate and [a] ferric chloride is added to the biological sludge, such that the combination of the polymeric quaternary ammonium compound, the aluminum sulfate, the ferric chloride, aluminum sulfate, and a polyacrylamide and blends thereof enhance the dewatering of the sludge.

31  
24. (Amended) The method for dewatering biological sludge according to claim <sup>29</sup> ~~17~~, wherein the polymeric quaternary ammonium [compounds] compound are from epichlorohydrin di-methyl amine (epi-DMA) family.

18  
25. (Amended) The method for dewatering biological sludge according to claim <sup>17</sup> ~~21~~, wherein the polymeric quaternary ammonium compound, aluminum sulfate, ferric chloride and blends thereof, are added directly to the sludge and, upon formation of microflocs of the sludge from the polymeric quaternary ammonium compound, aluminum sulfate, ferric chloride and blends thereof, a cationic

[polyacrylamidee] polyacrylamide is added to form a floc that dewateres the sludge.

23

26. (Amended) The method for dewatering biological sludge according to claim [19] 16, wherein ratios of the polymeric quaternary ammonium compound with respect to aluminum sulfate range from about 1:16 to about 1:2.

24

27. (Amended) The method for dewatering biological sludge according to claim [20] 16, wherein ratios of the polymeric quaternary ammonium compounds with respect to ferric chloride range from about 1:8 to about 1:10.

33

35. (Amended) The method for dewatering biological sludge according to claim 17, wherein the biological sludge [is mixed with] comprises primary sludge.

36. (Amended) The method for dewatering biological sludge according to claim <sup>34</sup>18, wherein the biological sludge [is mixed with] comprises primary sludge.